

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

To:
F R KELLY & CO
Attn. Boyce, Conor
27 Clyde Road
Ballsbridge
Dublin 4
IRELAND

(PCT Rule 44.1)

Applicant's or agent's file reference P74501PC00	Date of mailing (day/month/year) 27/01/2006
International application No. PCT/EP2005/001171	international filing date (day/month/year) 03/02/2005
Applicant FOTONATION VISION LIMITED	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

RECEIVED

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Jorge García Solé <div style="text-align: right;"> 30 JAN 2005 COMPUTER DIARIED Date: </div>
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P74501PC00	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2005/001171	International filing date (day/month/year) 03/02/2005	(Earliest) Priority Date (day/month/year) 04/02/2004
Applicant FOTONATION VISION LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

OPTIMIZED RED-EYE FILTER METHOD AND APPARATUS INVOLVING SUBSAMPLE REPRESENTATIONS OF SELECTED IMAGE REGIONS

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2005/001171

A. CLASSIFICATION OF SUBJECT MATTER

G06T7/00 H04N1/62 G06T5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G06T H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/044070 A1 (FUERSICH MANFRED ET AL) 6 March 2003 (2003-03-06) * Fig. 1a, paragraphs '0025-0029, 0035, 0040-0046! *	1-49
X	US 6 278 491 B1 (WANG JOHN Y. A ET AL) 21 August 2001 (2001-08-21) * abstract, Figs. 1-6, cols. 4-7 *	1-49
X	US 2002/136450 A1 (CHEN TONG-XIAN ET AL) 26 September 2002 (2002-09-26) * Figs. 3,4, paragraphs '0036-0039, 0047!, claim 6 *	1-49

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *8* document member of the same patent family

Date of the actual completion of the international search

5 January 2006

Date of mailing of the international search report

27/01/2006

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Borotschnig, H

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2005/001171

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JOFFE S ED - INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS: "Red eye detection with machine learning" PROCEEDINGS 2003 INTERNATIONAL CONFERENCE ON IMAGE PROCESSING. ICIP-2003. BARCELONA, SPAIN, SEPT. 14 - 17, 2003, INTERNATIONAL CONFERENCE ON IMAGE PROCESSING, NEW YORK, NY : IEEE, US, vol. VOL. 2 OF 3, 14 September 2003 (2003-09-14), pages 871-874, XP010670596 ISBN: 0-7803-7750-8 * Fig. 2, sections 2, 3 *	1-49
X	US 5 432 863 A (BENATI ET AL) 11 July 1995 (1995-07-11) * Figs. 2-4, col. 7 line 27-col. 8 line 57 *	1,34
A	US 6 407 777 B1 (DELUCA MICHAEL JOSEPH) 18 June 2002 (2002-06-18) * Figs. 1-10 *	1-49
A	US 5 751 836 A (WILDES ET AL) 12 May 1998 (1998-05-12) * Fig. 2b, col. 5 line 42-col. 9 line 52 *	1-49

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2005/001171

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003044070 A1	06-03-2003	EP 1293933 A1 JP 2003109008 A	19-03-2003 11-04-2003
US 6278491 B1	21-08-2001	JP 11284874 A	15-10-1999
US 2002136450 A1	26-09-2002	US 2005058340 A1 US 2005058342 A1 US 2005053279 A1	17-03-2005 17-03-2005 10-03-2005
US 5432863 A	11-07-1995	DE 69415886 D1 DE 69415886 T2 EP 0635972 A2 JP 3181472 B2 JP 7072537 A US 5748764 A	25-02-1999 29-07-1999 25-01-1995 03-07-2001 17-03-1995 05-05-1998
US 6407777 B1	18-06-2002	NONE	
US 5751836 A	12-05-1998	AU 702883 B2 AU 3419895 A BR 9508691 A CA 2199040 A1 CN 1160446 A EP 0793833 A1 HU 76950 A2 JP 10505180 T WO 9607978 A1 US 5572596 A	11-03-1999 27-03-1996 06-01-1998 14-03-1996 24-09-1997 10-09-1997 28-01-1998 19-05-1998 14-03-1996 05-11-1996

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2005/001171

International filing date (day/month/year)
03.02.2005

Priority date (day/month/year)
04.02.2004

International Patent Classification (IPC) or both national classification and IPC
G06T7/00, H04N1/62, G06T5/00

Applicant
FOTONATION VISION LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
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Authorized Officer

Borotschnig, H

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/001171

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/001171

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-49
Inventive step (IS)	Yes: Claims	
	No: Claims	1-49
Industrial applicability (IA)	Yes: Claims	1-49
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

* Reference is made to the following documents

D1: US-2002/0136450

D2: US-6 278 491

D3: US-6 407 777

D4: US-2003/0044070

* The following clarity objections need to be addressed first:

** Claims 1 and 34 fail to cite the essential feature that the approach is automated in contrast to manual selection/correction of red-eyes.

** The expression "selected regions of said...image" as used in claims 1,34 can stand for the single entire image - cf. i.a. claim 4 and pg. 2 of the description. Since this special meaning opposes standard usage, the expression "selected region of an image" and the use of the plural form "regions" are both unclear as long as their possible special meaning is not made explicit in the independent claims themselves.

** The claims cite a "subsample representation" as an integral part. Both the search and the opinion have been based on this fact. It is noted, however, that the description states on i.a. pg. 7 lines 15-18 that subsampling could be optional and thereby contradicts the claimed subject matter.

Novelty/Inventive Step:

* The subject matter of independent claims 1 and 34 is known from D1 which teaches a digital apparatus/method comprising a red-eye filter for modifying an area within a digitized image indicative of a red-eye phenomenon based on an analysis of a subsample representation of selected regions of said digitized image, cf. D1 Fig. 3,

Fig. 4 ref. sign 212, cols. [0036-0047].

- * The subject matter of dependent claims 2-33 and 35-49 appears also to be known from D1 *ibid.* and claim 6, see also passages cited in the search report. For example, with reference to claims 4, 6, 44, 46 it is noted that they do not imply that only specific image regions should be subsampled while others are not. Instead also the subject matter of claims 6 and 46 can be read on a situation in which the entire image is downsampled and only selected regions of these scaled images are used in template matching, which is exactly what happens in D1 which teaches multi-resolution decomposition of the input image, such that all analysis is performed in part at full-resolution and in part at subsample resolution. The degree of scaling mentioned in D1 can also be changed according to the size of the window and thus according to the complexity of the calculation, cf. D1 paragraph [0039].

The claimed subject matter thus lacks novelty w.r.t. D1.

- * In addition to the foregoing objections the following arguments should be noted:
- ** D2 could have been used instead of D1 because the subject matter of the claims additionally also lacks novelty w.r.t. D2 Figs. 1-6, col. 5 l. 45-56, col. 6 l. 29-56.
- ** Alternatively also an objection as to lack of inventive step could be formulated. Document D3 (by the applicant) would be taken as closest prior art for this line of argument. D3 discloses red-eye detection/correction without multi-scale processing. The technical effect of multi-scale processing is to save processing time, especially for complicated filters without noticeable losses in processing quality. The skilled person knowing D3 and faced with this problem would consult the relevant literature and find D4. Document D4 teaches in the passages cited in the search report, how to perform red-eye detection on a low-resolution version of the image and states in D4 paragraph [0029] that this analysis of low-resolution data requires less time. Again, alternatively, it would be equally conceivable to combine the teachings of document D3 with those of D1 or D2 cited above. In both cases the skilled person would arrive at the claimed subject matter by routine procedures and without exercising any inventive activity. This argument applies to all claims (compare also Figs. 1-10 of D3

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2005/001171

with Figs. 1-10 of the application) and shows that the subject matter of the present claims must also be objected to on the grounds of lack of inventive step.